NOVA SCOTIA Agriculture and Fisheries

Econ Rept 03/03

Farm Machinery and Equipment Custom Hire Services and Rates

2003

Prepared by:

David Robinson
Peter Swinkels

Halifax and Truro

Table of Contents

Page

Introduction 3

Farm Custom Services in Nova Scotia 3

Other Information Sources 7

Custom Work Rates in Ontario (2000 and 1997) 8

Manitoba Farm Machinery Rental and Custom Rates (2001) 11

Farm Custom Rates Paid in Ohio (2002) 13

Summary

The amount of custom work being done on Nova Scotia farms has increased significantly in recent years as operators have sought ways to reduce capital outlays or to increase machinery utilization. Machinery rentals and leasing have also increased. At $273 million the investment in machinery and equipment across the provincial agricultural industry remains large relative to work load. Custom work appears to play a somewhat bigger role in Canadian agriculture as a whole and a significantly greater role in the cases of farms in Quebec, Ontario and British Columbia. Custom hire rates are a perennial issue. Custom rates from surveys in Ontario (2000 and 1997), Manitoba (2001) and Ohio (2002) are reported here for reference purposes. There are a number of other states regularly surveying custom rates. These reports are available on the internet as are a number of other publications which provide useful information and approaches for management decisions regarding machinery investments and the hiring or offering of custom services.

Farm Machinery and Equipment
Custom Machine Services and Rates

Introduction

This report has been compiled for use by the farm operators considering either hiring or offering farm machinery and equipment custom hire services.

Farm Custom Services in Nova Scotia

At the time of the 2001 Census of Agriculture 1,762 Nova Scotia farms reported paying $12.3 million for custom work and contract work over the previous year while 723 farms reported paying $4.7 million for the rental and leasing of farm machinery, equipment and vehicles. These figures represent sizeable increases relative to the amounts that were reported five years earlier in the previous Census of Agriculture. In 1996 provincial farms reported paying $9.4 million for "custom work, contract work and machinery rental expenses." While the 1996 question on the census form did not include vehicles (which were included in 2001) it appears that the volume of farm work carried out by custom service operators or by rented and leased machinery increased by roughly a third to a half in only five years. Nevertheless the proportion of farm work performed by custom service operators in Nova Scotia appears to remain under the level for Canadian agriculture as a whole. On a proportional basis, farms in Ontario and Quebec appear to rely on custom and contract operators to do half again the workload that is done in Nova Scotia. Differences in crops, such as the importance of corn and soybeans in those two provinces, is a factor in this comparative situation.

The expenses reported by farms for custom and contract work and for rental and leasing arrangements at the county level across Nova Scotia in 1995 and 2000 are shown in Table 1. An indication of the relative use of custom work can be obtained by comparing reported custom work expenditures with the reported capital value of machinery and equipment on farms. Such a comparison suggests that custom services play the greatest roles in Digby, Colchester, Yarmouth and Cumberland counties. In Hants County custom service expenses were equivalent to only 2% of the value of machinery of farms or less than half the provincial level.

Rental and leasing appears to be used to a greater extent in Nova Scotia compared to the situation nationally. Expenditures at $4.7 million were equivalent to 1.4% of the capital value of machinery and equipment of farms. Nationally rental and leasing outlays were equivalent to a lesser 0.9% of the value of machinery and equipment in 2001.

Table 1
Custom & Contract Work and Rental & Leasing Expenses By County, 1995 and 2000

County	1995	2001[1]	
	Custom Work, Contract Work, & Machinery Rental Expenses	Rental and Leasing of Farm Machinery & Vehicles	Custom Work & Contract Work
		$ 000	
Shelburne	10,352	4,949	4,072
Yarmouth	14,090	63,297	243,628
Digby	142,936	137,599	661,053
Queens	55,649	44,883	64,525
Lunenburg	429,989	138,096	575,393
Annapolis	412,467	421,459	724,424
Kings	2,394,128	1,493,809	2,678,353
Hants	722,057	463,380	673,969
Halifax	552,700	173,396	460,950
Colchester	1,645,248	718,638	2,283,741
Cumberland	1,541,447	393,030	1,916,537
Pictou	465,597	198,338	595,068
Guysborough	468,921	50,150	231,677
Antigonish	111,521	196,340	789,074
Inverness	x	106,876	342,199
Richmond	160,704	x	x
Cape Breton	152,157	51,246	44,380
Victoria	x	x	x
Province	9,417,435	4,669,127	12,309,676

1. "Custom Work and Contract Work" and "Rental & Leasing of Farm Machinery, Equipment, & Vehicles" were separate entries for expenses in 2001; In 1996 they were grouped together. This change limits the compatibility of the data between 2001 and previous censuses.

Source: Statistics Canada, Census of Agriculture.

Nova Scotia farms as a whole have a relatively large investment in machinery and equipment relative to the amount of field work undertaken. In many farming situations it is a challenge to ensure that machines are used over enough acres to achieve per unit costs which are comparable to major production acres. Providing custom services is one means to increase utilization and thereby avoid having excessive machinery and labour capacity. Alternatively large capital outlays might be avoided by custom hiring.

Timothy Hewitt[1] (while noting that every farm situation is unique, and each farm operator must decide the best blend of owned and hired machines) has listed the advantages and disadvantages of using custom services as follows:

Lower equipment and ownership costs.

Flexibility in directing capital resources.

Smaller acreages.

More flexibility to adjust crop mix to meet market demands.

Ability to utilize a custom operator's specialized skills and experience.

Contracting for the use of multiple machines.

Elimination of obsolescence risk.

Producer benefits from utilizing more modern, more efficient equipment.

Allowing farm manager time to perform other work.

Disadvantages to custom hiring include:

Excessive rates at certain times.

Unavailability of machines when needed.

Custom operator's reliability

Work quality.

Contamination (weeds and diseases) from other farms.

Higher total costs.

---

[1] Hewitt, Timothy D.; "Custom Rates for Farm Machinery", University of Florida, Cooperative Extension Services, 2000.

A question that frequently arises when custom services are discussed or considered is "What is a fair rate?", "How much should I charge/pay?" For many or most provincial farms the local market - that is the supply and demand for custom services within the area that machinery can be transported, is "thin". Rates are not determined by the interaction of a large number of buyers and sellers of well defined services with standard conditions. There are reports from other farming areas of significant variability in rates between locations and this is likely the case here as well for at least some services. Rates which are too high or too low prohibit custom services playing the full beneficial role that otherwise could materialize. Excessive rates discourage the use of hired services. Rates which are too low on the other hand discourage services being offered particularly when the decisions to do so are made jointly with whether or not to invest in a particular piece of machinery. An experience which many farm operators recall involves the realizing of short term profits but long term costs. Consistent with this perspective are assessments and commentaries such as made with the University of Georgia's custom rates survey report:

> **"Most estimates of machinery costs indicate custom rates** do not cover total machinery costs. Rates charged are usually sufficient to pay fuel and repairs. But often the amount left after paying these two items does not pay overhead and a competitive allowance for labor."

References to the rates being charged in major farming areas are nevertheless a ready (albeit perhaps rough) guide to consider. Included below are the full rate schedules which have been recently reported in Ontario, Manitoba and Ohio. There are many other custom rate surveys which are available on the internet. The addresses for a few extra ones are listed on p.7. Most are for U.S. states. These rates are given in U.S. funds and understate the comparable rates for Canadian farms - as is the case for the Ohio rates shown below. Converting the U.S. rates at the present exchange of $1.50, on the other hand, somewhat overstates the rates as most analysts still consider the Canadian dollar as undervalued. When it is no longer heard that the low value of the Canadian dollar is an advantage for exporters converting the rates at exchange will give a more valid reference point. Nevertheless the availability of many state level reports on custom rates should be noted as information is provided on a vast range of farm services. Clemson University's survey includes a rate for shaking pecan trees! Florida rates include cotton picking - as well as hand hoeing. Nebraska's rates for combining sunflowers and dry edible beans are more likely to be of interest to somebody here. Minnesota reports custom farming rates for corn ($US75 per acre) which include tillage, planting, cultivating and harvesting. Michigan reports rates for chain sawing, hired milking and post hole boring.

It is especially the case for the U.S rates but even the Canadian ones should be used with some caution. While these are all considered accurate assessment of prevailing charges they may not reflect the cost of performing specific work. Field size and field and crop conditions and distances for example are factors which can have a sizeable influence on costs. Difference in fuel costs may make unadjusted rates from another location or year inappropriate.

Other Information Sources

References to the custom service rates being charged elsewhere can be helpful information but major management decisions on machinery investments (as well as highly astute pricing decisions) require greater planning and analysis. Some publications that may be of assistance in decision to purchase, lease or hire custom services are:

Determining the Cost of Owning or Custom Hiring Machinery Services
http://www.agnr.umd.edu/MCE/Publications/Publication.cfm?ID=337

Acquiring Farm Machinery Services
http://www.extension.iastate.edu/Publications/PM787.pdf

Calculating Equitable Custom Rates
http://www.farm.mngt.wsu.edu/PDF-docs/equitablecustomrates.pdf

Budgeting Farm Machinery Costs
http://www.gov.on.ca/OMAFRA/english/busdev/facts/01-075.htm

Calculating Machinery Costs and Contract Rates
http://www.agric.nsw.gov.au/reader/2274

Machinery Cost Estimates
http://www.farmdoc.uiuc.edu/manage/machinery/

The Cost Of Owning and Operating Farm Machinery
http://www.coopext.colostate.edu/ABM/abmmch.pdf

Using Machinery Costs to Make Decisions
http://www.ces.uga.edu/Agriculture/agecon/pubs/machinery.html

Some additional survey reports on custom hire rates are:

Custom Machine Work Rates in Michigan, May 2002
http://www.aec.msu.edu/agecon/aecreports/aec613.pdf

Wisconsin's Custom Rate Guide, 2001
http://www.uwex.edu/ces/ag/facstaff/custrate01.pdf

Minnesota Farm Custom Rate Survey for 1999
http://www.extension.umn.edu/distribution/businessmanagement/DF3700.html

2000 Custom Work Rates
Ontario Provincial Summary

		2000 Average	1997 Average
TILLAGE			
Mouldboard Plow	ac	$18.32	$17.01
	hr	$74.38	$63.48
Chisel Plow/Soil Saver	ac	$15.41	$14.32
	hr	$85.91	$90.00
Disc	ac	$11.03	$10.05
	hr	$79.62	$67.08
Field Cultivate	ac	$9.56	$9.25
	hr	$95.00	$75.94
packer/roller	ac	$5.80	$5.00
Subsoil Tillage	ac	$20.56	$21.00
	hr	$103.33	
PLANTING			
SOYBEANS			
Conventional Row Planter			
Row width 23 in. or less	ac	$14.92	$13.06
Row width 24 in. or more	ac	$13.75	
Conventional - Drill	ac	$12.72	$11.22
Minimum/No-Till Planter			
Row width 23 in. or less	ac	$18.97	
Row width 24 in. or less	ac	$19.45	$18.73
No-Till Drill		$19.18	$18.70
Air Seeder without fertilizer	ac	$18.00	
Air Seeder with fertilizer	ac	$18.89	
CORN			
Conventional Row Planter	ac		
Row width 23 in. or less	ac	$16.95	
Row width 24 in. or more	ac	$13.55	$12.75

Ontario		2000 Average	1997 Average
CORN			
Minimum/No-Till	ac	$19.14	
Row width 23 in. or less	ac	$20.07	$19.38
Row width 24 in. or more			
CEREALS (OATS, BARLEY, WHEAT)			
Conventional Drill	ac	$12.98	$11.40
No-Till Drill	ac	$19.33	$18.49
Air Seeder without fertilizer	ac	$17.69	
Air Seeder with fertilizer	ac	$18.92	
FORAGES			
Drill	ac	$14.92	$13.74
Brillion Type	ac	$12.00	$12.00
Broadcast/ATV Spreading	ac	$3.51	$3.73
WEED CONTROL			
HERBICIDE (excluding herbicide cost)			
Pre-Emergent, No Incorporation	ac	$7.28	$6.50
Pre-Emergent, Incorporation	ac	$11.65	$11.14
Post Emergent Conventional Sprayer	ac	$7.10	$6.55
Post Emergent High Clearance Narrow Tire Spreader	ac	$7.45	$6.89
Rope Wick	ac	$4.31	$3.89
Preharvest herbicide	ac	$7.33	$6.88
Aerial	ac	$10.25	
MECHANICAL WEED CONTROL			
Inter-row cultivation	ac	$9.03	$6.87
Rotary Hoe	ac	$5.61	$5.82

Ontario		2000 Average	1997 Average
FERTILIZER APPLICATION			
Spread dry fertilizer	ac	$6.11	$6.00
Rental of dry bulk applicator	ac mt ton	$7.05 $9.75 $11.60	$9.15
Anhydrous	ac	$12.53	$10.78
Liquid sidedress	ac	$9.06	$8.23
GRAIN COMBINING			
Corn	ac hr	$33.58 $132.94	$32.43 $111.10
Soybeans	ac hr	$32.86 $127.06	$31.65 $119.77
Cereals	ac hr	$30.57 $123.35	$29.00 $102.38
Canola	ac hr	$31.11 $119.00	$28.75
Additional charges for GPS or Identity Preserved	ac	$2.33	
Grain cart alone	ac mt hr	$3.93 $3.40 $43.36	
Swathing	ac	$10.50	$10.59
OTHER CROP HARVESTING			
Edible Beans Bean Pulling	ac	$27.12	$23.62
Combining - Conventional Grain Type	ac	$34.99	
Combining - Specialty - Bob/Lissiston/Pickett	ac	$43.36	
TRUCKING			
Grains and Oilseeds	bu mt ton hr	$0.14 $6.35 $6.59 $62.50	$0.14 $6.50

Manitoba Farm Machinery Rental and Custom Rate Guide
2001 Typical Costs Per Acre

		Speed	Machine Size or Type	Rental Rate	Custom Rate
Balers	(round bales - 15 bales/h)		4-6 ft. dia.	$1.60-2.70/bale plus twine	$3.50-5.50/bale plus twine
	(square bales - 200 bales/h)		14 x 18 in.	$0.095-0.115/bale plus twine	$0.18-0.21/bale plus twine
	(large sq. bales - 30 bales/h)		32 x 34 in.	$2.50-3.75/bale plus twine	$4.00-6.00/bale plus twine
Bale Pickup	(SP square bale wagon)		160 bales	$0.21-0.27/bale	$0.27-0.35/bale
	(PT round bale wagon) (6 km round trip)		12 bales	$0.85-1.30/bale	$2.60-3.70/bale
Combine (SP)	(Wheat @ 45 bu/ac.)	3-5 mph	25 ft.	$13.50-18.00/ac	$15.50-21.00/ac
Cultivator	(first operation)	4-5 mph	40 ft.	$1.05-1.30/ac	$3.50-5.00/ac
	(secondary operations)	4.5-5.5 mph	40 ft.	$0.85-1.05/ac	$3.25-4.50/ac
Grain truck	(20 mile round trip)	35-50 mph	590 bus. (wheat)	$.0023-.0027/bu/mile	$.0041-.0045/bu/mile
	(60 mile round trip)		590 bus. (wheat)	$.0018-.0023/bu/mile	$.0032-.0037/bu/mile
Harrows		5.5-7 mph	80 ft.	$0.30-0.40/ac	$0.95-1.15/ac
Mower Conditioner		4-5 mph	14 ft.	$5.00-5.75/ac	$8.50-9.75/ac

Manitoba 2001 cont.		Speed	Machine Size or Type	Rental Rate	Custom Rate
Seeders	(air seeder/air drill)	4-5 mph	40 ft.	$5.00-6.75/ac	$7.00-9.50/ac
	(drill)	4-5 mph	40 ft.	$3.50-4.50/ac	$5.50-8.00/ac
Sprayers	(pull type)	5-8 mph	100 ft.	$1.05-1.55ac	$2.00-2.50/ac
	(self-propelled)	12-15 mph	80 ft.	$1.50-2.25/ac	$1.75-2.50/ac
Tractors		4-7 mph	2WD	$0.18-0.21/hphr	add $0.07-0.09/hphr. for fuel and $10/h for labour
			FWA	$0.20-0.24/hphr.	
			4WD	$0.15-0.18/hphr.	

http://www.gov.mb.ca/agriculture/financial/custom/cus01s33.html

Farm Custom Rates Paid in Ohio, 2002

Robert Moore
Agricultural, Environmental, and Development Economics
Ohio State University Extension
The Ohio State University

Operation	Unit	Avg.	Range
		.....(S).....	
Soil Preparation			
Stalk Chopper	acre	8	4-12
Moldboard Plow	acre	13	8-17
Disk Plow	acre	10	6-14
Chisel Plow	acre	12	8-16
Disk	acre	9	6-11
Drag	acre	7	3-11
Disk and Drag	acre	10	5-14
Harrow	acre	8	3-12
Field Cultivator	acre	9	5-12
Land Leveling	hour	9	3-14
Land Leveling	hour	30	12-48
Subsoiling	acre	13	9-18
V-Ripping	acre	12	8-17
Fertilizer Application			
Dry Bulk	acre	3.70	2-5
Dry Bulk	ton	4.20	3-6
Dry Bulk (applicator only)	acre	3.30	2-4
Dry Bulk (applicator only)	ton	4.00	3-5
Annhydrous	acre	7.20	5-10
Lime	acre	7.60	2-14
Lime	ton	9.70	3-16
Chemical Weed Control			
Spraying-ground	acre	5	3-7
Spraying-ground (incorporated)	acre	5	3-7
Spraying-aerial	acre	7	6-9
Rope Wick	acre	5	2-7
Mechanical Weed Control			
Rotary Hoeing	acre	7	3-10
Conventional Cultivate	acre	8	5-11
Ridge Cultivating	acre	8	6-10
Aerial Application			
Fertilizer	acre	6	2-9
Chemicals	acre	6	3-9

Operation	Unit	Avg.	Range
		.....(S).....	
Planting Operation			
Conventional			
Seed Only	acre	12	8-15
Seed & Fertilizer	acre	13	9-17
Seed, Fert., Chemicals	acre	12	7-17
No-Till			
Seed Only	acre	13	9-16
Seed & Fertilizer	acre	15	11-19
Seed, Fert., Chemicals	acre	16	10-22
Drills/Seeders 7'			
Soybeans			
Seed Only	acre	13	9-16
Seed & Fertilizer	acre	16	11-20
Small Grains			
Grain Only	acre	12	9-15
Grain & Grass Seed	acre	16	11-21
Grass Seed			
Broadcast	acre	6	3-9
Grain Drill	acre	12	8-15
Grain Harvest			
Combine-Corn	acre	21	18-25
Combine-Soybeans	acre	21	17-25
Combine-Small Grain	acre	21	17-24
Ear Corn Picker	acre	19	11-28
Picker-Sheller	acre	19	14-23
Silage Harvest			
Corn Silage			
chopping	ton	4	3-5
chop, haul, fill	ton	5	2-9
Hay/Straw Harvest			
Mowing	acre	9	5-13
Mowing/Conditioning	acre	10	7-13
Raking	acre	5	3-8
Tedding	acre	5	2-7

Operation	Unit	Avg.	Range
		.....($)	
Baling - Small Square Bales			
Baled and Dropped	bale	0.41	0.24-0.57
Baled and Loaded	bale	0.47	0.27-0.66
Charge to Haul & Store	bale	0.21	0.07-0.35
Baling - Large Round Bales			
Baled & Left in Field	bale	6.50	5-8
Baled and Hauled	bale	8.50	6-11
Move Stack or Bale	bale	2.50	1-5
Wrapping in Plastic	bale	6.00	3-9
Complete Hay Harvest			
	ton	26	10-42
	% crop	55	45-65
Drainage and Tile Installation			
Ditching	foot	0.28	0.14-0.41
Backfilling	foot	0.06	0.02-0.11
Tile Installation			
4" plastic	foot	0.46	0.23-0.68
6" plastic	foot	0.64	0.37-0.92
Grain Storage, Drying and Hauling			
Initial Take-In Charge	bu.	0.12	0.06-0.17
Take in Plus 4 months	bu.	0.12	0.07-0.18
Storage Charge	bu/mo	0.03	0.02-0.04
Grain Drying	pt/bu	0.036	0.015-0.058
Grain Hauling			
Farm to Market (33 mi)	bu.	0.12	0.07-0.17
Field to Farm (12 miles)	bu.	0.08	0.04-0.11
Custom Farming All machinery operations for growing & harvesting			
Corn	acre	63	40-85
Soybeans	acre	54	34-75
Small Grains	acre	50	31-69

Operation	Unit	Avg.	Range
		.....($).....	
Miscellaneous Services			
Bush Hogging	acre	13	6-9
Grind Feed	cwt.	0.52	0.24-0.80
Building Fence	hour	20	8-33
Income Tax Preparation	hour	78	36-120
Income Tax Preparation	return	192	57-327
Farm Account Summary	return	298	118-477
Track Hoe	hour	76	55-96
Snow Removal			
Loader	hour	43	25-60
Blade	hour	46	27-65
Blower	hour	52	27-78
Hauling Livestock	mile	22	0.77-1.67
Bulldozing	hour	59	46-73
Sheep Shearing	head	3.50	1-5.75
Machinery Rental			
Tractor			
50-100 hp	hour	25	11-39
120-180 hp	hour	28	17-39
200-425 hp	hour	54	31-76
Corn Planter: No-till	acre	11	6-15
Combine	acre	20	12-29
Grain Drill			
Conventional	acre	11	8-14
No-Till	acre	10	8-13
Bobcat/Skidsteer	day	123	88-158
Hired Labor			
Machinery Operation	hour	9.80	7-13
Milking Cows	hour	9.20	5.50-13
General Farm Labor	hour	8.00	6-10
General Farm Labor+ Benefits	mo.	2335	1399-3271

The rates reported are based on survey results from Ohio farmers. The rates shown may differ significantly by local region depending on availability of custom operators and demand for their services. Operations with few responses were not included.

http://aede.ag.ohio-state.edu/people/moore.301/custompage.htm